



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

NOTICES OF NEW BOOKS.

La Philosophie Géométrique de Henri Poincaré. Par LOUIS ROUGIER.
Paris, Félix Alcan, 1920.—pp. 208.

This book is an attempt to justify the theory of conventions of Poincaré as a logical method by means of an analysis of the critical and empirical philosophies in their relations to geometry. It begins with a critical and historical account of the development of non-Euclidean geometry, whose method is deductive. All deductive theory, says the author, consists in a double process of reduction: the reduction of notions to other notions by definitions, and the reduction of propositions to other propositions by demonstration (p. 13). The reduction is effected through means of a rigid logical calculus. The process is purely formal, has nothing to do with content (p. 122), and rests ultimately upon a system of indefinable first notions and indemonstrable primary propositions, the choice of such system being conventional and indeterminate but not arbitrary. It is conventional in the sense that no absolute meaning is attached to the qualifications indefinable and indemonstrable, or to first notions or primary propositions; it is indeterminate in the sense that no particular meaning attaches to first notions; but it is not arbitrary in that it must respect the two necessary conditions of sufficiency and coherence. A system is sufficient if, by reference to the notions and propositions chosen as first, one can define all other notions and demonstrate all other propositions in the science under consideration. It is coherent if its first propositions are compatible, or lead to no contradiction.

The analysis of modern types of geometry, which occupies Part I of the book, shows that such expressions as 'equality of two distances,' 'displacement without change of form,' and consequently the notion of right lines and of planes upon which the geometry of measurement rests, have no univocal meaning. "There can be made to correspond to them three distinct families of lines, of surfaces, and of solids" (p. 113), which, as three systems of measurement, are, from the logical point of view, equally coherent (p. 114) and are as theory equally useful in the physical sciences (p. 115). "Then to call *right lines*, *planes*, *solids*, those figures which correspond to the Euclidean definition of the equality of two distances, rather than those which correspond to the definition of Lobatchefsky or of Riemann, is, from the theoretical point of view, merely a question of a *nominal convention*. From the practical point of view it is a question of an *instrumental convention*, since it is to elect a certain

system of measurement, and consequently to choose a certain type of instrument for measuring space. As Poincaré has well said: 'The equality or inequality of two distances are two expressions which have no meaning by themselves; that is precisely why I have been obliged to have recourse to a *convention* in order to give them one. I am led to regard as equal those which a certain method of measurement gives as equal; I could have used a different convention' (p. 114). "A convention is a statement which expresses the free agreement existing among a number of persons . . . with respect to a speculative or practical subject" (p. 121). Psychologically, a convention differs from a proposition in that it is not "*a judgment which is imposed upon the assent of our understanding,*" but in that it is a "*decree issuing from the free decision of our mind, which is proposed to the consent of our will*" (p. 121). Logically, a convention differs from a proposition in that it is a statement that is not susceptible of truth or falsity, but of which it can only be said that it is more or less indispensable and convenient. However, a convention, like a proposition, possesses modality. It is necessary if it is the condition *sine qua non* of the study one has in mind; gratuitous, if not indispensable; optional, if, while indispensable to the study one has in mind, it is chosen from among several (it may be an infinite number) of other possible ones. Poincaré is concerned only with optional conventions. They can be recognized by the fact that "one can always replace a convention of a given sort by a contrary convention without involving anything more than a simple change of scientific language, . . . one can always pass from one system of optional conventions to another by the simple means of translation" (p. 122). Thus the classic dilemma in which the traditional logic leaves the problem of knowledge is easily solved by Poincaré. The principles of science, which are regarded by the rationalists as absolutely necessary truths independent of the mind or of nature, by the critics as *a priori* laws of our sensibility or of our understanding, by the empiricists as empirical truths, are shown to be simple conventions (p. 200). These conventions are not true, but convenient; they are not necessary, but optional (*facultatives*); they are not imposed by experience, but are only suggested by it. Instead of being independent of our mind or of nature, they exist only by virtue of a tacit agreement among minds, and they depend fundamentally upon the external circumstances of the environment (p. 201).

Such is the theory of conventions. In so far as it depends strictly upon mathematical considerations, I should not presume to be able even to comment upon it. But it is presented as a logic; and as such it seems to assume that the whole content and significance of logic is exhausted in the system of formal principles through which any consistent thought must of necessity express itself. But if it is true that the principles of science

represent an 'agreement among minds,' that they 'depend upon the external circumstances of the environment,' that they are 'suggested by experience,' and that they must be 'sufficient' and 'coherent,' there would seem to be little meaning in the assertion that those principles are not susceptible of truth and falsity. For it is precisely the fulfillment or non-fulfillment of these conditions that has constituted truth and falsity throughout the logical tradition that begins with Socrates, in spite of the fact that the emphasis has at various periods been placed most heavily upon the formal aspects of the experience process. It is an extremely useful and suggestive point of view to regard the principles of science as devices of convenience in investigation developed as a sort of by-product of the logic of reality which seeks truth; or to represent them as types of subjective attitudes toward the facts of experience which embody purposes not yet fully objectified into universals. It means that one is more or less free in the choice of hypotheses. But the attempt to work out a logic of conventions seems to convert them into statements the truth or falsity of which must be considered the moment the question of the relation of one to another is raised. A principle of science may therefore, it seems, be accepted as a convention so long as it is taken as a pure, that is, as an isolated and abstract and contentless, symbol; but to undertake a system of conventions is to raise the question of their meanings, and meanings refer at once beyond our subjective attitudes to relations that are true independently of our particular acts of will or of choice. The mathematical logic seems therefore to make the mistake, in depending so heavily upon deduction, of assuming that it can follow a purely formal process of thought which can reach real results independently of any reference to concrete fact. And it may be in this way that its advocates are enabled to reach their peculiar type of realism, the system of concepts which, without percepts, are empty. It is possible for the mathematician, as for others, to take his symbolism too seriously. It is due to the habit of marking too sharp a distinction between the product of thought and the act of thought. It is possible to regard a symbol or an instrument that is chosen as distinct from the act of thought which chooses it; but it is not permissible to attribute to it the same nature as when it is conceived as integral with the act of choice. And the act of choice will always be found at some point and in some degree to rest upon an inference, and an inference implies that somewhere something is real. To put the difficulty more concretely: How, if principles are mere conventions resting upon a decree of the will and therefore not subject to characterization as true or false, can the relation between pure mathematics and applied mathematics, or for that matter the general question of the relation of theory to practice, be conceived? The principles of mathematics will, it is imagined, hold for mechanics, whose pronouncements are supposed to be true of what is real.

But if in the one case the principles are mere conventions, how or by what magic do the same principles become propositions and possible bases for truth in the other? There is no objection to holding the principles of science as conventions for purposes of utility. But utility is one thing and logic is another, hence a logic of conventions begins to look like a contradiction in terms. To speak therefore of philosophy, whether rationalist or empiricist or critical, as being superseded by conventionalism comes too near saying that there will be no philosophy at all.

E. JORDAN.

BUTLER COLLEGE.

La Psychologie Française Contemporaine. Par GEORGES DWELSHAUVERS. Paris, Félix Alcan, 1920.—pp. xii, 260.

This book is intended to parallel the two admirable works of Ribot on modern German and English psychology. The undertaking was inspired, says Dwelshauvers, by Ribot himself, who, when reminded that French psychology still lacked a historian, "voulut bien nous conseiller d'assumer la tâche de l'écrire" (p. vii). The outcome of Dwelshauvers's studies is an illuminating and highly useful piece of work, worthy to be placed beside those of his master.

The author's frankly acknowledged belief in the superiority of French psychology in no wise affects the quality of his judgment,—but rather gives impetus to his thought, since he remains strictly within the limits indicated by his task. Perhaps he does not take, indeed, sufficient account of the foreign influences which affected French thought at different periods. But in limiting himself to the 'multiple efflorescence' of French psychology itself, and attempting to trace its development in terms of its central and governing ideas, the author has rendered valuable service. And in the end, summing up his review, we feel little inclined to dispute his contention that "le sceptre de la psychologie," which has been claimed by England and Germany in turn, remains "aujourd'hui comme à l'époque classique, au pays de Montaigne et de Pascal, de Descartes et de Malebranche, de la Rochefoucauld et de Vauvenargues" (p. x).

The plan of the work is simple. It consists of six chapters and a conclusion. The first chapter is devoted to Maine de Biran. The second treats of Théodore Jouffroy and the Eclectics. The third deals with "The Great Systems Opposed to Eclecticism,"—those of Comte, Cournot, Renouvier, Ravaisson, and Durand de Gros. Chapter four is devoted to the founders of "scientific psychology," Taine, Ribot, Tarde, and "L'Ecole de Paris." Chapter five presents the idealistic and neo-spiritualistic systems of Fouillée, Lachelier, Boutroux, Hannequin, Lagneau, Brunschvicg, and Lalande. The final chapter, as might be anticipated, deals with Bergson, his psychology and his 'creative evolution,' and closes with a